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***ECHINOGAMMARUS NAVAENSIS* (CRUSTACEA, AMPHIPODA)**
A NEW SPECIES OF THE *BERILLONI*-GROUP FROM ASTURIAS (NORTHERN SPAIN)

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ABSTRACT

A new species, *Echinogammarus navaensis*, belonging to the *berilloni*-group has been found in the northern part of the Cordillera Cantábrica (Asturias). The morphological characters of this species are compared to those of other members of this group. In many localities, *E. navaensis* coexists with *E. berilloni* (Catta, 1878). A zonation in the distribution of the two species has not been found.

INTRODUCTION

Pinkster (1973) and Platvoet & Pinkster (1980) mention the northern part of the Iberian Peninsula as a region which is extremely rich in amphipods belonging to the *E. berilloni*-group. Nevertheless, so far only two species were known from Asturias, *E. berilloni* (Catta, 1878) from the lower parts of rivers, and *E. pseudoaquillifer* Platvoet & Pinkster, 1980 from the upper regions (Pinkster, 1973; Platvoet & Pinkster, 1980). Recently new material was collected in the drainage basin of the river Piloña, in which a species new to science has been found.

DESCRIPTIVE PART

Echinogammarus navaensis n.sp.

Material examined

Spain, Prov. Oviedo. (1) Río Traspando at Nava; 31-I-1984. The ♂ holotype, ♀ allotype and 22 paratypes have been deposited in the collections of the Museo Nacional de Ciencias Naturales, Madrid, Spain. Other collecting dates 2-V-1984; 2-VIII-1984. (2) Río Viao, before confluence with Río Traspando; 31-I-1984; 2-V-1984; 2-VIII-1984. Accompanying species *E. berilloni*. (3) Río Salar, near road to Tresoli; 7-II-1984; 2-VIII-1984. (4) Río Piloña before confluence with Río Salar; 14-II-1984; 31-IV-1984. (5) Río Viao at Ceceda; 14-II-1984. (6) Río Pinuergo at road from Carancos to Coya; 15-II-1984. Accompanying species

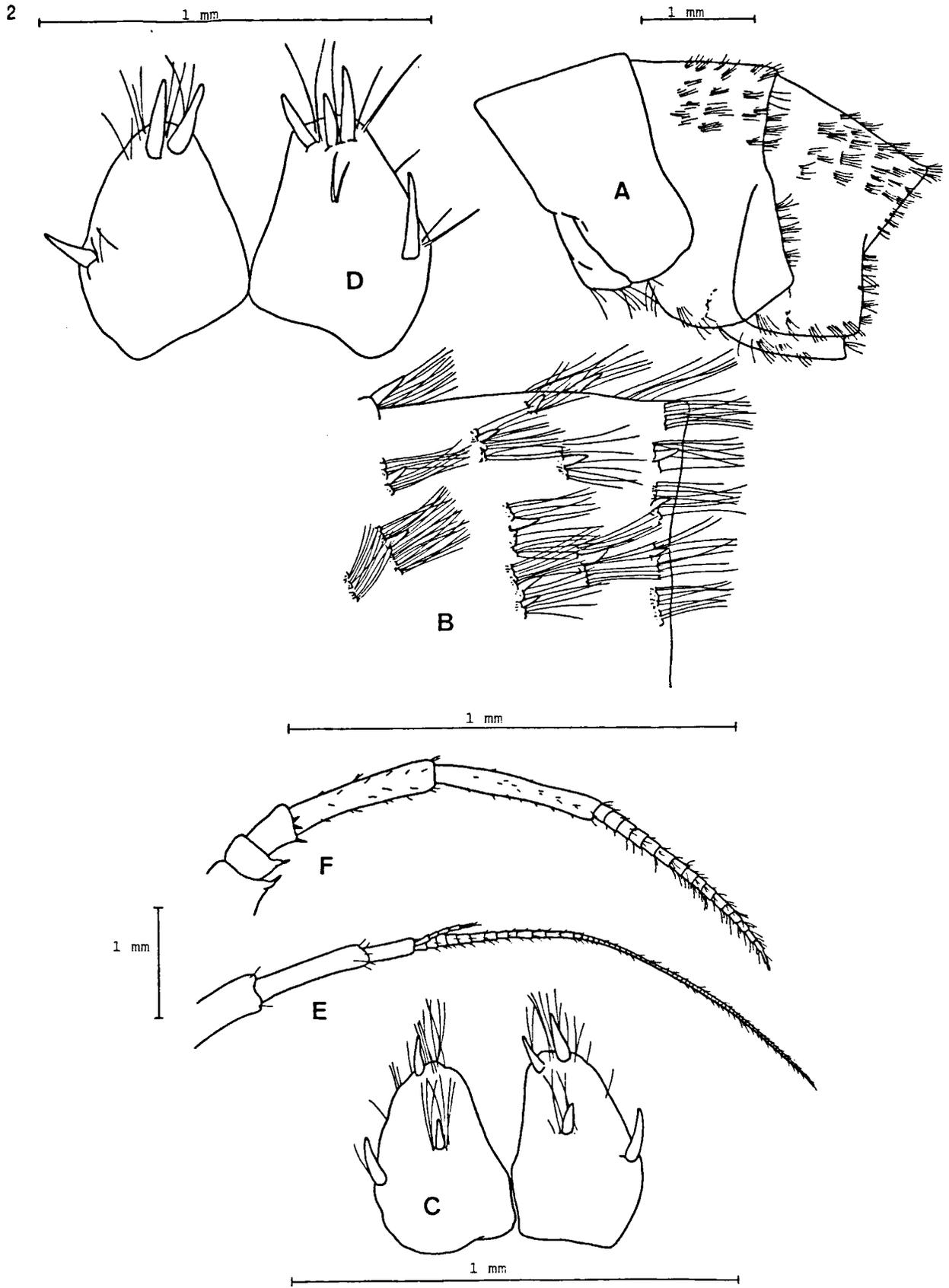


Fig. 1. *Echinogammarus navaensis* n.sp. ♂ from the type-locality. A, metasome; B, detail of third metasomite; C, telson; D, telson of other specimen; E, first antenna; F, second antenna. Scales = 1 mm.

E. berilloni. (7) Río Piloña at road N-634 to Carancos; 14-II-1984; 31-IV-1984. (8) Río Piloña at road to Infiesto; 21-II-1984. (9) Río Piloña after confluence with Río Doble; 6-III-1984; 7-VI-1984; 21-VIII-1984. (10) Río Piloña at Infiesto; 6-III-1984; 21-VIII-1984. (11) Río Piloña after confluence with Río Espinaredo at the road to Espinaredo; 6-III-1984; 21-VIII-1984. (12) Río Piloña before confluence with Río Valle; 14-VI-1984. Accompanying species *E. berilloni*. (13) Río Pesqueñín at Villamayor; 15-III-1984; 28-VI-1984. (14) Río Piloña at Villamayor; 15-III-1984. Accompanying species *E. berilloni*. (15) Río Tendi at Sevares; 20-III-1984; 4-IX-1984. Accompanying species *E. berilloni*. (16) Río Cúa at its confluence with Río Piloña; 27-III-1984. (17) Río Piloña at Soto de Dueñas; 27-III-1984; 19-VI-1984. Accompanying species *E. berilloni*. (18) Río Mampodre at road from Ozones to La Vega; 25-IV-1984; 12-IX-1984. Accompanying species *E. berilloni*.

The position of all localities is illustrated in fig. 6.

Diagnosis

A medium large species, making a slender impression. First metasomite unarmed; other abdominal segments with groups of 10 to 20 short setae of about equal length, arranged in a more or less comb-like way. Anterior margins of P5 to P7 armed with groups of densely implanted, very short setae. Posterior margins poorly armed

Description

Male: Maximum body length observed 15 mm. Metasomites 2 and 3 as well as urosimtes segments set with groups of 10 to 20 short setae, often intermixed with one or more short spines, curved backward. This feature resembles the situation found in juvenile *E. berilloni*. The setation becomes gradually longer with each moult (figs. 1A, B).

Lateral cephalic lobes more or less truncated, eyes reniform, more than twice as long as wide.

First antenna (fig. 1E) half as long as body. Peduncle segments 1 and 2 about equal in length. Number of segments variable, up to 38 in the flagellum and up to 5 in the accessory flagellum. Armature of both peduncle and flagellum poor.

Peduncle segments 4 and 5 of second antenna (fig. 1F) in so far characteristic that the setae, implanted in longitudinal rows, are very short, hardly longer than the accompanying spines. Flagellar segments bearing setae near distal end, the latter slightly longer than the segments. Calceoli have never been

found. Mouthparts basically identical to those illustrated by Pinkster (1969) for *E. berilloni*. First segment of mandibular palp unarmed; second segment with limited number of setae which gradually increase in length towards distal end. Inferior margin of third segment with a comb-like row of up to 19 D-setae and 6 or 7 E setae. Two groups of A-setae and 2 or 3 groups of B-setae present (fig. 2C).

Inferior margins of coxal plates rounded with short setae (figs. 4G, F).

Propodus of first gnathopod (fig. 2D) pyriform, palm oblique. Medial palmar spine strong and pointed, widely separated from group of palmar angle spines.

Propodus of second gnathopod (fig. 2E) larger. Characteristic because of series of strong spines implanted along palm, separated from each other, and from palmar angle spines through wide gaps. Smaller spines on interior surface.

Last three segments of pereopod 3 (fig. 5A) bearing groups of long setae along posterior margin. Number of setae variable, their length usually twice diameter of segment. Dactylus rather short.

Setation of last three segments of pereopod 4 (figs. 5B, C) less dense and shorter than in pereopod 3.

Pereopods 5 to 7 (figs. 3A-D) show some diagnostic characters. Anterior margins of basis, merus and carpus armed with groups of densely implanted but very short setae, shorter than in other species of the *berilloni*-group. These setae are slightly curved towards distal end of segment. Usually some setae, placed in distal parts of each group, twice as long as the others. Posterior margins of merus and carpus armed with few spines and short setae only. Postero-interior surface of basal segments of P5 to P7 armed with groups of short setae, similar to those on abdomen. Posterior margins of these segments lack long setae that are so characteristic for most members of the *berilloni*-group.

Inner ramus of third uropod very short, reduced. Outer ramus armed with clusters of setae intermixed with 1 or 2 spines on both inner and outer margin (fig. 2B).

Armature of telson lobes variable. Unlike other

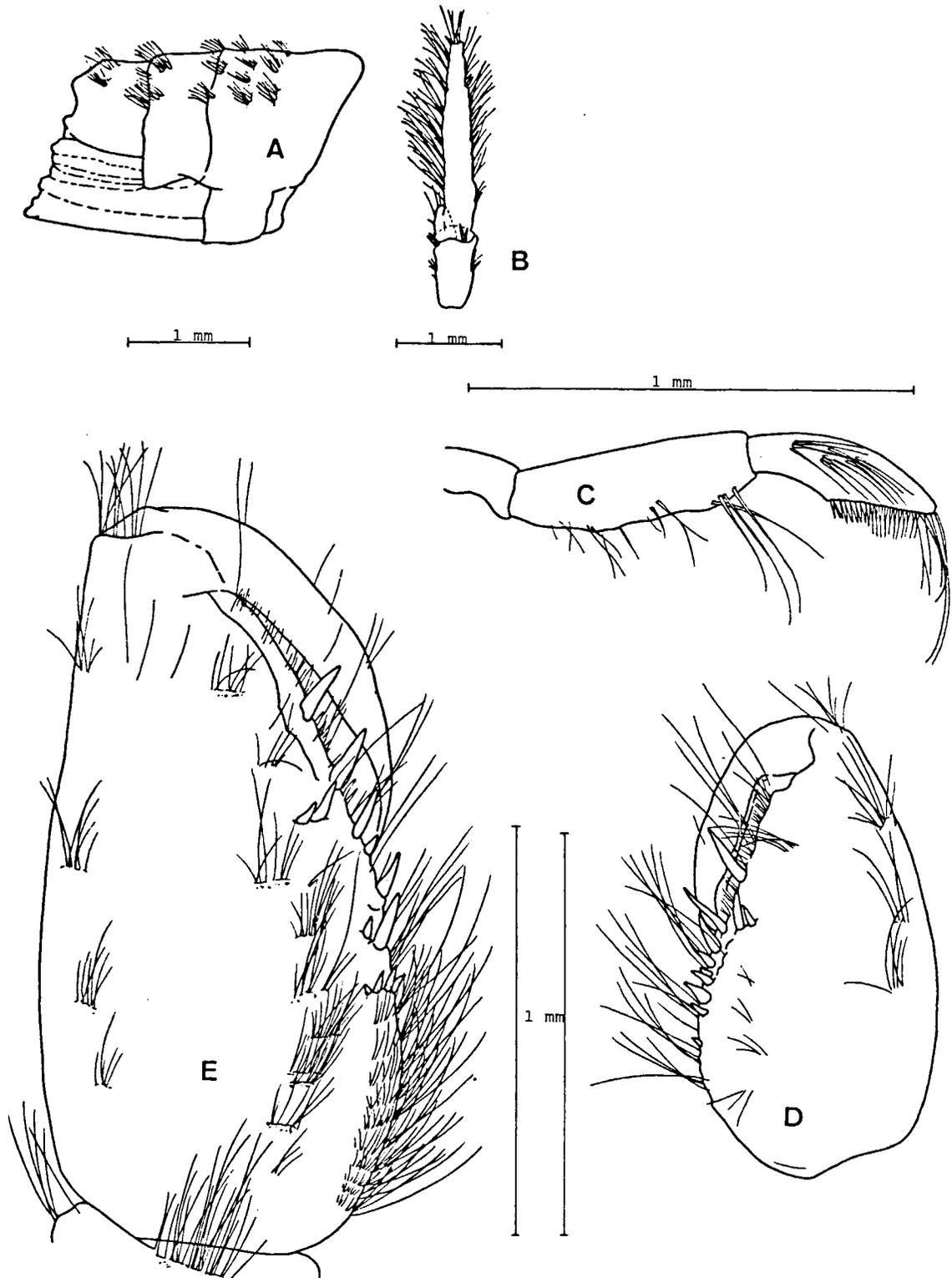


Fig. 2. *Echinogammarus navaensis* n.sp. ♂ from the type-locality. A, urosome; B, third uropod; C, mandibular palp; D, first gnathopod; E, second gnathopod. Scales = 1 mm.

members of the *berilloni*-group, often one or two spines and some setules can be found on dorsal surface. One spine and 1 or 2 setae implanted on outer margin. Some spines and many setae, slightly longer than the spines, form apical armature (figs. 1C, D).

Female: As in other members of the *berilloni*-group, clear sexual dimorphism exist. Female much smaller (maximum length observed 12 mm) than other sex. Characteristic groups of setae on abdomen are almost absent (fig. 4B). Setation on peduncle segments of second antenna much longer, as well as setation (though limited in number) on anterior margins of P5 to P7 (figs 4C-E). Epimeral plates sparsely armed with short setae (fig. 4A).

Variability

The variable characters are in general those described by Pinkster (1973) for the *berilloni*-group, like the number of setae on the flagellar segments of A1 and A2, the length of the setae on the abdominal segments, on the appendages, etc.

The diagnostic characters of *E. navaensis* are stable throughout the year. In all localities and in the different samples from each locality these characters differentiate the new species from *E. berilloni* with which it often coexists.

The arrangement of the short setae or the groups of short setae does not change throughout the year. Only the number of groups and the length of the individual setae increase with age. The few longer setae in each tuft along the anterior margins of P5 to P7 show variability both in number and length between populations. These setae also increase in length with age.

In some localities a variable number of specimens of *E. navaensis* have a group of one or two spines and some setae on the dorsal surface of telson. This character, although not always present, has never been recorded for other species within the *berilloni*-group.

Ecology

E. navaensis seems to be an euryplastic species that can be found both in the headwaters and middle

reaches of larger rivers and its tributaries. It is found between pebbles as well as in submerged macrophytes and bryophytes. It can stand a rather high degree of pollution (Miranda, 1985).

DISCUSSION

The new species belongs to the *berilloni*-group because of a combination of characters: elongate reniform eyes, second gnathopod much more strongly developed than the first, presence of densely implanted setae on pereopods, metasome and urosome, and absence of calceoli (see Pinkster, 1973). It is easily distinguishable from *E. berilloni* by the different disposition and length of the groups of elements on meta- and urosomites, the absence of such elements on the first metasomite and the absence of long setae on the posterior margin of the basal segments of P5 to P7. In these characters the new species also differs from *E. longisetosus* Pinkster, 1973, *E. calvus* (Margalef, 1956), *E. tarraconensis* Pinkster, 1973, and *E. feminatus* Pinkster, 1973.

The short setae on the pereopods, though a little shorter, resemble the setation found in *E. echinosetosus* Pinkster, 1973 (fig. 5E). *E. navaensis* differs from *E. echinosetosus* in the absence of dorsal armature on the first metasomite (see Fernández Lop, in press, and compare figs. 1A and 5D).

The absence of a flag-like brush of setae on the second antenna of the male clearly differentiates the new species from *E. aquilifer* Pinkster, 1969, *E. pseudoaquilifer* Platvoet & Pinkster, 1980, *E. zebrius* Pinkster & Stock, 1971, and *E. meridionalis* Pinkster, 1973.

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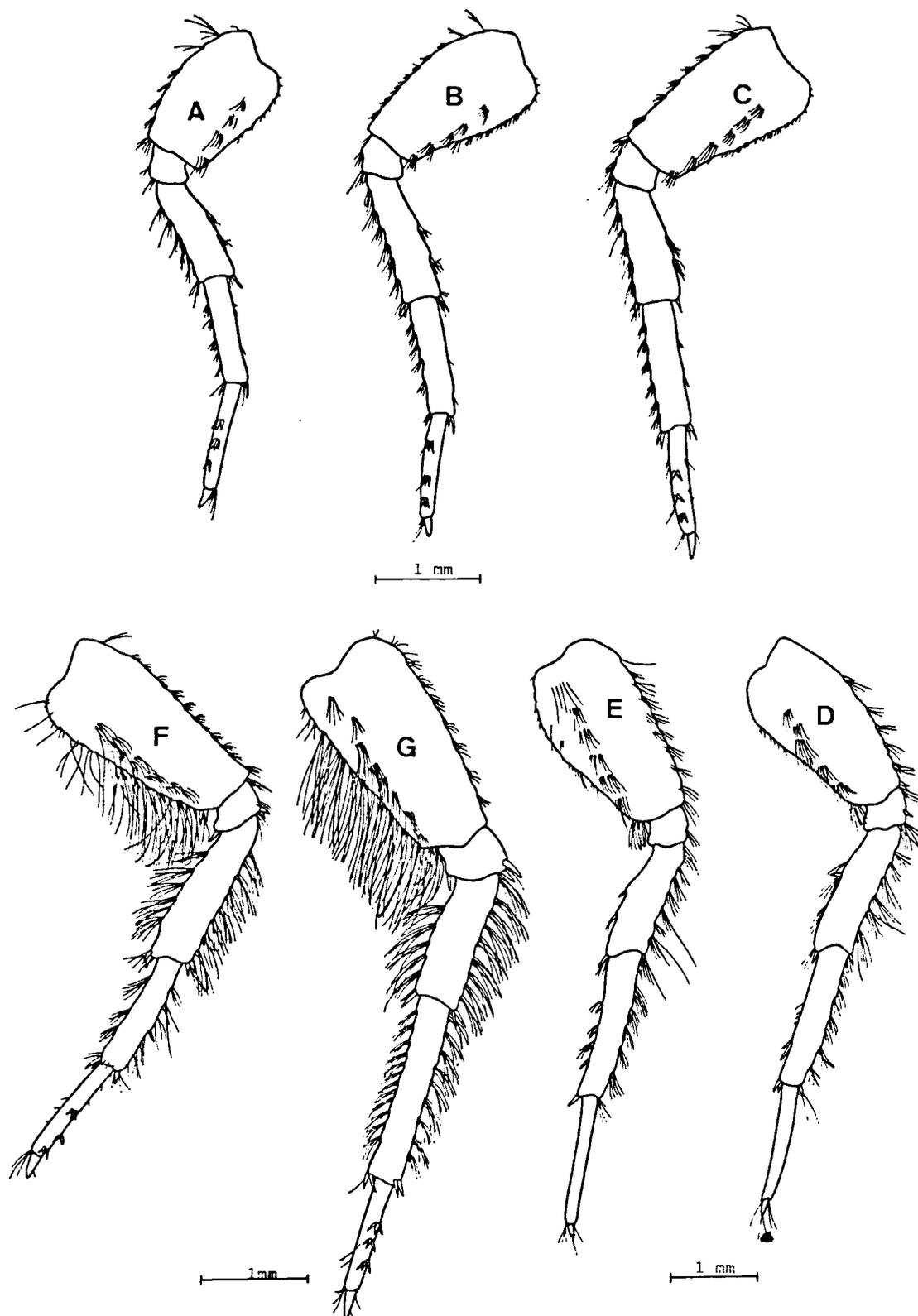


Fig. 3. A-E, *Echinogammarus navaensis* n.sp. ♂ from the type-locality. A, fifth pereiopod; B, sixth pereiopod; C, seventh pereiopod; D, sixth pereiopod of other specimen; E, seventh pereiopod of other specimen; F-G, *Echinogammarus berilloni* (Catta, 1878), from Piloña river. F, sixth pereiopod; G, seventh pereiopod. Scales = 1 mm.

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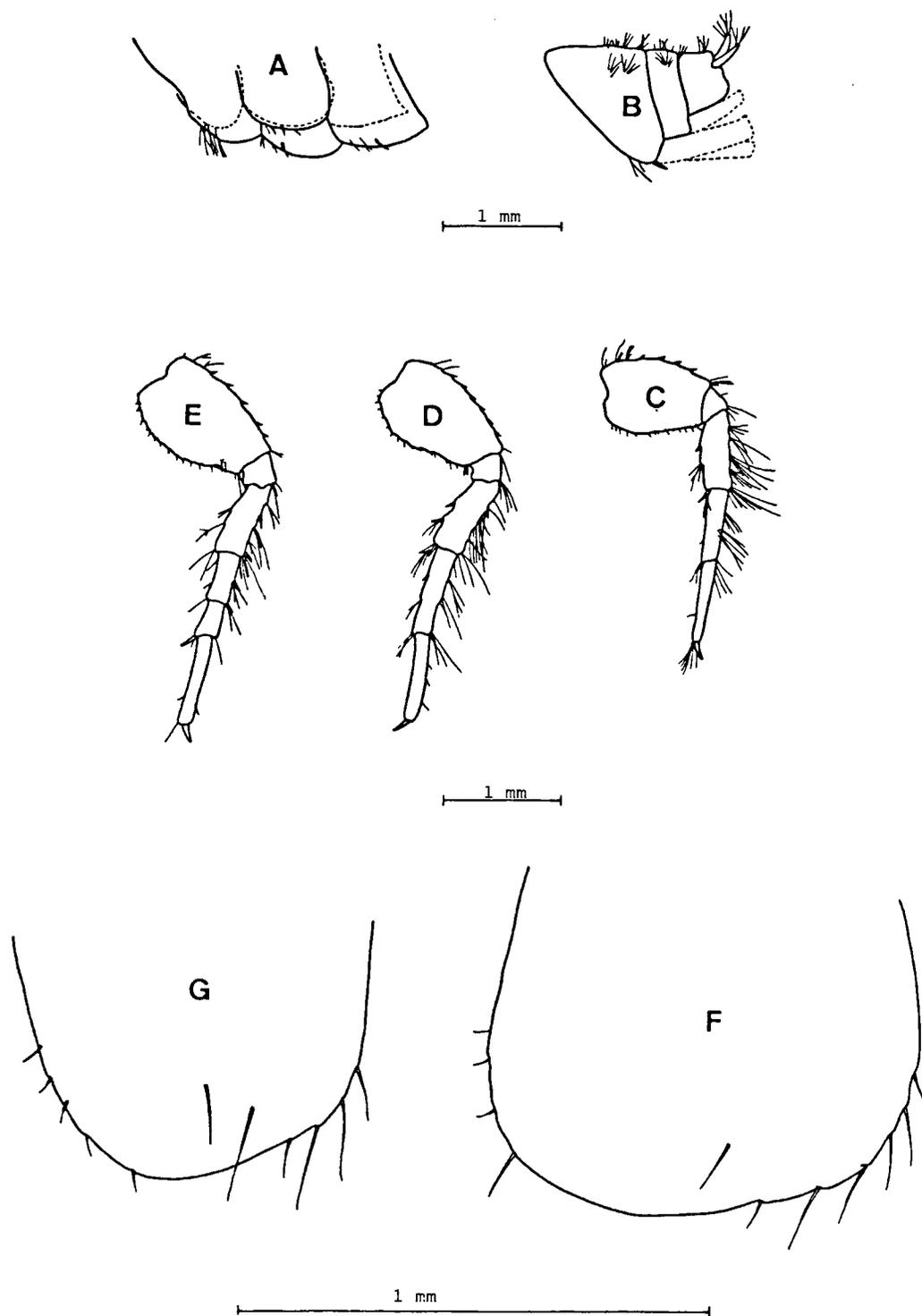


Fig. 4. *Echinogammarus navaensis* n.sp. A-E, ♀ from the type-locality. F-G, ♂ from the type-locality. A, epimeral plate; B, urosome; C, fifth pereopod; D, sixth pereopod; E, seventh pereopod; F, first coxal plate; G, second coxal plate. Scales = 1 mm.

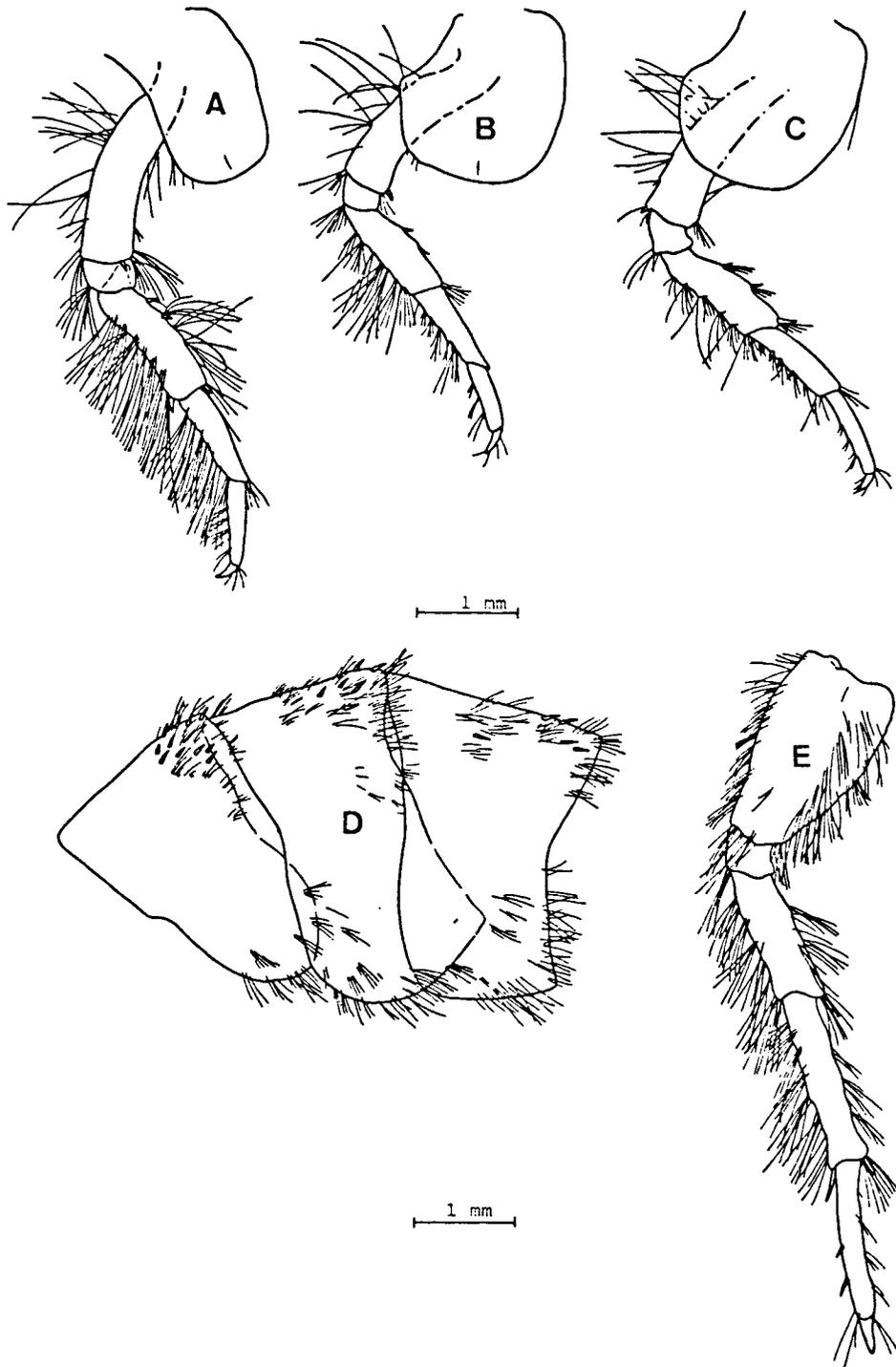


Fig. 5. A-C, *Echinogammarus navaensis* n.sp. ♂ from the type-locality. D-E, *Echinogammarus echinosetosus* Pinkster, 1973, from Rio Jiloca (Teruel, Spain). A, third pereopod; B, fourth pereopod; C, fourth pereopod of other specimen; D, metasome; E, seventh pereopod. Scales = 1 mm.

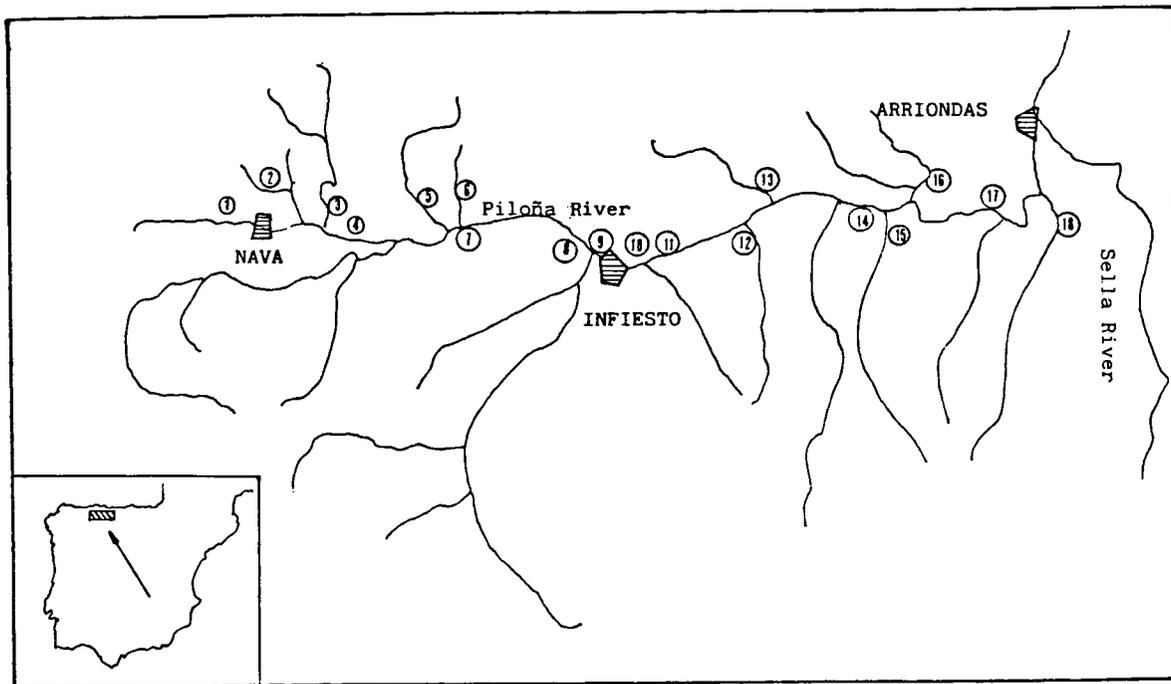


Fig. 6. Distribution of *Echinogammarus navaensis* n.sp. in Asturias (northern Spain).